REMARKS

Applicants respectfully request entry of the amendments and remarks submitted herein. Claims 1, 12, 38, 55, 57, 74, 79, and 86 have been amended and non-elected claims 6-8, 21-37, 39-53, 61-73, 75-78, 82-85 and 87-90 have been canceled without prejudice to continued prosecution. Therefore, claims 1-5, 9-20, 38, 54-60, 74, 79-81, 86 and 91-93 are currently pending. Reconsideration of the pending application is respectfully requested. Please amend claims as follows.

Objections to the Specification

The specification stands objected to because it contains embedded hyperlinks. Applicants have amended the specification herein to remove the embedded hyperlinks. In view of these amendments, Applicants respectfully request that the objections to the specification be withdrawn.

Objections to the Claims

Claims 1, 21, 61, 74 and 87 stand objected to for reciting the non-elected invention. Claims 1, 55, 74 and 86 have been amended to recite the elected polypeptide (i.e., the polypeptide having the sequence of SEQ ID NO:42 (encoded by the nucleic acid of SEQ ID NO:31)). In view of these amendments, claims 21, 28, 61, 73 and 87 have been canceled without prejudice to continued prosecution.

Claims 2 and 3 stand objected to for being unclear regarding the recitation of 9^{th} and 10^{th} carbons. Applicants respectfully disagree, and refer the Examiner to paragraph [0068] of the published application, which indicates that the double bonds are numerically identified by "counting from the carbonyl (carboxyl) carbon." This is standard nomenclature in the chemical arts and the reference to the 9^{th} and 10^{th} carbons in claims 2 and 3 is not unclear. In view of these remarks, Applicants respectfully request that the objection to claims 2 and 3 be withdrawn.

The 35 U.S.C. §112 Rejections

Claims 55-61 stand rejected under 35 U.S.C. §112 as the Examiner asserted that those claims are indefinite for failing to particularly point out and distinctly claim the subject matter that Applicant regards as the invention. The Examiner indicated that claim 55 is indefinite because "the construct" of claim 1 lacks antecedent basis since claim 1 is directed toward a transgenic plant.

Applicants have amended claim 55 to be directed toward a method of making the transgenic plant of claim 1 and have further amended claim 55 to recite the features of the construct. In view of the amendments and remarks herein, Applicants respectfully request that the rejection of claims 55-61 under 35 U.S.C. §112, second paragraph, be withdrawn.

Claims 1-20 and 54-60 stand rejected under 35 U.S.C. §112, first paragraph, as the Examiner asserted that those claims contain subject matter that was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. According to the Examiner, the claims are enabled for the isolated nucleic acid of SEQ ID NO:32, a transgenic plant comprising a nucleic acid encoding the polypeptide of SEQ ID NO:41 operably linked to a vegetative-tissue specific promoter and a method of producing such transgenic plants, but is not enabled for a transgenic plant comprising a DNA encoding any polypeptide.

As required by the Restriction Requirement of July 11, 2006 and Applicants' Response of August 11, 2006, Applicants have amended claim 1 to recite that 'said polypeptide has at least 95% sequence identity to the amino acid sequence shown in SEQ ID NO:41…' Applicants note that support for the sequence identity language can be found at paragraph [0078] in the published application. According to the Examiner's statements in the current Office Action, Applicants believe that claim 1 as amended is enabled. Accordingly, Applicants respectfully request that the rejection of claims 1-20 and 54-60 under 35 U.S.C. §112, first paragraph, be withdrawn.

The 35 U.S.C. §103 Rejections

Claims 86 and 88-93 stand rejection under 35 U.S.C. §103 as being unpatentable over Green et al. (WO 98/046762). According to the Examiner, Green et al. teach transformed plants

comprising DNA sequences encoding plant fatty acid epoxygenase enzymes and methods of altering fatty acid composition and levels in plants. The Examiner stated that Green et al. teaches a nucleic acid encoding fatty acid epoxygenase under the control of CaMV 35S promoter, and transgenic plants with increased levels of vernolic acid. The Examiner asserted that "since CaMV 35S promoter provides strong constitutive gene expressions, one would expect increased expression of the epoxygenase/hydroxylase at levels of 0.1% to 35% in both vegetative and non-vegetative tissues of the transformed plant." Applicants respectfully traverse this rejection.

According to recent case law regarding obviousness, the PTO must show that "there was an apparent reason to combine the known elements in the fashion claimed by the patent at issue" and that it is important to "identify a reason that would have prompted a person of ordinary skill in the relevant field to combine the elements in the way the claimed new invention does." *KSR Int'l Co. v. Teleflex Inc.*, 550 U.S. ____ (2007). Since Applicants were the first to describe the beneficial effect of the presence of hydroxy- or epoxy-fatty acids in vegetative tissues on nematode resistance, there was no reason one would have wanted to express a hydroxylase or epoxegenase in vegetative tissues prior to this disclosure.

Green et al. discloses fatty acid epoxygenase sequences, and discloses the expression of those sequences to generate epoxygenase enzymes in transgenic plants. Green et al. discloses that such epoxygenase sequences can be used to alter or manipulate fatty acid metabolism in a number of organisms including plants. Since Green et al. desires to use the epoxygenase sequences to increase the amount of epoxy fatty acids produced by an organism, Green et al. teaches that "[i]n a more preferred embodiment, the promoter may be derived from a highly-expressed seed gene, such as the napin gene..." (see, page 39, lines 23-24). In addition to seed-specific promoters, Green et al. discloses a number of different highly-expressed or constitutive promoters such as CaMV 35S (see, for example, the paragraph bridging pages 38-39).

Contrary to the Examiner's assertion, constitutive promoters do not result in the expression of epoxygenases and the accumulation of epoxy fatty acids in vegetative tissues. See, for example, Rezzonico et al. (2004, *Theor. Appl. Genet.*, 109:1077-82;), which reports growing plants in liquid culture in the presence of linoleic acid in order to obtain vernolic acid in leaves because the "presence of epoxy fatty acids in the lipids of transgenic *A. thaliana* expressing the

C. palaestina 12- epoxygenase under the control of the constitutive CaMV 35S promoter is typically undetectable in adult rosettes of soil-grown plants" (first sentence of 'Results and discussion' section on page 1078). Rezzonico et al. goes on to state that "similar results have been observed for transgenic plants expressing either the California bay lauroyl-ACP thioesterase or the *Ricinus communis* oleic acid 12-hydroxylase in vegetative tissues" (second sentence of 'Results and discussion' section on page 1078 with cites to Broun et al. (1998, *Plant J.*, 13:201-210) and Eccleston et al. (1996, *Planta*, 198:46-53)).

In addition, Iwabuchi et al. (2003, *J. Biol. Chem.*, 278(7):4603-10;) discloses a delta-12 desaturase-like enzyme that makes conjugated fatty acids, and states that "there was no difference in the fatty acid composition of vegetative tissues between transgenic and untransformed plants" (last paragraph in left column on page 4605) and that "[i]n all transgenic plants, punicic acid was detected in seeds but not in vegetative tissues" (first sentence of first full paragraph in right column on page 4605). Further, Tables 2 and 3 of Broun et al. (1998, *Plant J.*, 13(2):201-10;) shows that no hydroxyl fatty acids are detected in the leaves or roots for either the *Ricinus communis* or *Lesquerella fendleri* hydroxylase, and Broun & Somerville (1997, *Plant Physiol.*, 113:933-42;) discuss that hydroxylated fatty acids were not observed in leaves or roots (see, for example, the first full paragraph in the left column on page 941).

As evidenced by the enclosed references, transgenic plants of Green et al. would not have expressed the epoxygenase in the vegetative tissues, even if one of the highly or constitutively expressed promoters were used. Further, Green et al. discloses that expression of expoxygenase in seed is the most desirable, so that the accumulation of epoxy-fatty acids takes place in the seed where a number of other fatty acids accumulate. Based on the teachings of Green et al., one would not have achieved expression of an epoxygenase in vegetative tissues, and there is no reasons provided by Green et al. that would prompt one to express an epoxygenase in vegetative tissues. In view of the remarks herein, Applicants respectfully request that the rejection of claims 86 and 88-93 under 35 U.S.C. §103 be withdrawn.

CONCLUSION

Applicants ask that claims 1-5, 9-20, 38, 54-60, 74, 79-81, 86 and 91-93 be allowed.

Please apply any charges or credits to Deposit Account No. 06-1050.

Respectfully submitted,

Date: June 4, 2007

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